

92 DOE 16257

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October 22, 1992

92-RF-11569

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Manager  
DOE, RFO

Attn: J. D. Wienand

## OPERATING PLAN FOR BUILDINGS 123 AND 881 THAT ADDRESSES SECONDARY CONTAINMENT FOR ANCILLARY EQUIPMENT - JMK-0946-92

This letter has been prepared in response to the Department of Energy letter (T. A. Vaeth (9284) to J. O. Zane, Noncompliance with Colorado Hazardous Waste Regulations Regarding Secondary Containment for Ancillary Equipment, August 24, 1992), to document the operations in Buildings 123 and 881 which are critical for maintaining health, safety and immediate environmental concerns at the Rocky Flats Plant (RFP). These activities require use of the RCRA regulated process waste system in each building, which currently do not have adequate secondary containment. Aqueous process wastes generated during sample analyses which do not support health, safety or environmental concerns will not be transferred into the process drain system.

### BUILDING 123 ANALYTICAL LABORATORIES

#### ANCILLARY EQUIPMENT COMPLIANCE STATUS

In June 1992, it was determined that secondary containment within the pits located in Rooms 156, 157, and 158 of Building 123 was "unfit-for-use" due to the poor condition of the epoxy coating. It was also determined that the ancillary equipment from the point of generation (laboratory sinks) to the collection manifold located in the pits did not have adequate secondary containment. This ancillary equipment includes the connecting piping (including the overhead piping above ceiling tiles) and the four sump tanks located under sinks in Rooms 103A, 111, and 125.

An engineering assessment conducted by Environmental Design Engineering in August has identified which parts of the piping require repair or replacement, such as unwelded flanges, valves, screw type connections, and sump tanks with no secondary containment. The Scope and Estimate will be completed on October 23, 1992. An actual date of completion for this work has not been determined due to a lack of funding. A preliminary estimate for the completion date after funding is obtained would be 94.5 weeks.

TO:	2202	
FROM:	1-11-192	
DATE:	11/1/92	
CLASS:	ILTR	ENG
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#### OPERATIONS WHICH MUST BE CONTINUED

Use of the process waste system in Building 123 is vital to RFP to support in-vitro bioassay, Industrial Hygiene room air filters, environmental ambient air samples, surface water samples, and effluent stack samples. The Analytical Laboratories in Building 123 performs the analyses needed to support these safety or environmental programs. Commercially available laboratories are not available to adequately support the timely analysis of the large volumes of samples generated by these programs.

- In-Vitro Bioassay

The bioassay program conducted by the Analytical Laboratories is crucial to maintaining an effective internal radiation program as required by the U. S. Department of Energy (DOE) Order 5480.11 and 10 CFR 20. An effective internal dosimetry program is crucial to monitoring the health and safety of the plant's employees. The bioassay program consists of two sub-programs: Special Bioassay and Routine Bioassay.

- Special Bioassay

The Special Bioassay program is used to determine if an intake of radioactive material occurred as a result of a wound or exposure to an airborne contamination incident, and to quantify the intake if one did occur. Special bioassay data must be generated as soon as possible following a potential intake incident. The time frame in which the data must be generated is dependent on the magnitude of the potential intake. The higher the magnitude, the quicker the data is required. The most serious incidents require that data be available as soon as possible. Occupational Health uses this data to determine if medical intervention, such as chelation therapy, is warranted, or if chelation therapy was used, to judge its effectiveness and determine if additional therapy is required.

Radiation Protection will use the special bioassay data to determine if an intake occurred, to calculate the resultant dose if an intake did occur, and to compare any dose estimates with dose limits given in DOE Orders and RFP Administrative Guidelines. A restriction from entering radiologically controlled areas (RCAs) may be necessary for the employee depending on the dose levels.

The employee needs the data as quickly as possible to make decisions regarding their own health, or to relieve anxieties produced by the uncertainty of not knowing if they were internally exposed to plutonium. A commercial laboratory would take a minimum of two to three months, whereas, Building 123 laboratories can analyze the sample within two weeks.

- Routine Bioassay

The Routine Bioassay program is used to verify and document that containment of radioactive materials is maintained, and to detect any intakes that were otherwise undetected by work place monitoring. The Routine Bioassay program is also used to monitor the approximately 1,000 employees with measurable systemic depositions of plutonium or americium. Regardless of the plant's activity status, these programs are required as long as there is a potential that a person could receive an internal deposition, or employees have known internal depositions.

The Analytical Laboratories in Building 123 can analyze a bioassay sample within two weeks. A commercial laboratory would take a minimum of two to three months.

- Industrial Hygiene Room Air Filters

The Analytical Laboratories in Building 123 analyze approximately 2,500 room air filters per month for beryllium. Commercially available laboratories cannot adequately support the timely analysis of the large volumes of samples generated by this program. The beryllium monitoring programs are essential to support the RFP safety envelope for protection of RFP employees.

- Environmental Air Analyses

The Analytical Laboratories in Building 123 analyze RFP building air effluent samples and ambient (outdoor) air samples for radioactive materials. Continuously collected samples from over 50 locations for each program are analyzed. Analyses include screening for long-lived alpha and beta radioactivity, as well as sample preparation on effluent air samples for isotopic-specific measurement of plutonium, americium, uranium, beryllium, and tritium. Results of these analyses are used to ensure that control systems for radioactive materials are operating properly, and to demonstrate compliance with the Clean Air Act National Emissions Standards for Hazardous Air Pollutants (NESHAP), and DOE Orders 5400.5 and 5400.1. Environmental Management has been unable to identify any commercially available laboratory support which is adequate to provide timely analyses for the large number

of samples generated in the air monitoring programs. The air monitoring programs are a significant part of the RFP safety envelope for protection of the public and the environment from RFP release of radioactive materials.

The Analytical Laboratories in Building 123 can analyze an environmental sample in one month. A commercial laboratory, if available, would take a minimum of three to six months.

- Environmental Surface Water Analyses

The Analytical Laboratories in Building 123 analyze RFP surface water samples for radioactive materials. Samples from approximately 20 locations are analyzed by the laboratory. Analyses include isotopic-specific measurement of plutonium, americium, uranium, and tritium. Results of these analyses are used to ensure that offsite surface water discharges demonstrate compliance with the Clean Water Act National Pollutant Elimination System (NPDES) permit, the Agreement in Principle (AIP), and DOE Orders 5400.5 and 5400.1. Environmental Management has been unable to identify any commercially available laboratory support which is adequate to provide timely analyses for the large number of samples generated in the surface water monitoring programs.

The Radiological Health Laboratories can analyze an environmental sample in one month. A commercial laboratory would take a minimum of three to six months.

#### COMPENSATORY MEASURES

Continued operation of the process waste system to support these critical health and safety activities will be done in accordance with the following compensatory measures, as detailed in the RCRA Contingency Plan 92-016, submitted to the Colorado Department of Health (CDH) on June 17, 1992.

- Visually inspect visible and accessible sump tanks, pits, and aboveground piping once per operating shift for signs of leakage.
- Ceiling tiles will be lifted to allow inspections for signs of leakage from piping in areas which do not have additional restrictions due to the presence of friable asbestos.
- Visually inspect all floor areas beneath, or adjacent to, any ancillary equipment (including equipment not accessible or visible, such as piping concealed within walls or cabinets) once per operating shift.

- If any leaks are detected, the affected portion of the ancillary equipment will be shut down immediately until repairs are completed. If any leaks are detected, supervision will promptly notify the Occurrence Notification Center who will then notify the on-call Waste Programs staff member.

NOTE: Inspections of accessible ancillary equipment will be completed where possible. Inaccessible ancillary equipment includes piping behind permanently mounted laboratory cabinets or above ceiling tiles where restrictions due to the presence of friable asbestos exist. Where possible, cabinet doors will be opened and objects will be moved in order to inspect the ancillary piping. In addition, we will investigate other alternatives, such as installing moisture detection cables along inaccessible ancillary piping.

#### BUILDING 881 GENERAL LABS

##### ANCILLARY EQUIPMENT COMPLIANCE STATUS

It has been determined that Building 881's ancillary equipment for the process waste system is inadequate to meet secondary containment requirements. Several areas on the process waste pipelines inside Building 881 consist of unwelded flanges, clean-out ports, screw type connections, and/or uninspectable piping due to drop ceilings. All operations in Building 881 which generate process wastewater were shut down on August 31, 1992. The process waste pipeline is a gravity feed system. Based on this process knowledge there should be no liquid stored in these lines.

An engineering assessment, conducted by Environmental Design Engineering in August, 1992, has identified the ancillary equipment requiring repair or replacement. The assessments are currently being documented by Environmental Design Engineering. This report will be finalized on October 23, 1992. The scheduled date for repairs or replacement cannot be determined until the report is completed.

##### OPERATIONS WHICH MUST BE CONTINUED

Building 881 personnel have examined the processes in the General Laboratories which are vital to RFP to support analysis of unknown spills, abandoned material and ~~fingerprinting for organics~~. These activities, which use the process waste system, are critical for addressing health, safety and immediate environmental concerns. Private laboratories are available to support these activities, but turnaround time is unacceptable. The cost of using private laboratories would also significantly increase the cost for analysis.

- Unknown Spills and Abandoned Material

Analytical operations associated with spill response and abandoned material must be conducted. Unknown spills and most abandoned wastes require analysis to make a RCRA hazardous waste determination. The response time required for this analysis is immediate in order to protect the public and the environment. This work is performed utilizing most of the analytical techniques within the lab. Samples are analyzed using Gas Chromatography/Mass Spectrometry, Atomic Absorption, Emissions Spectroscopy, extraction areas, and radiochemistry.

The General Labs in Building 881 can provide preliminary analysis of an unknown sample, or abandoned material within 24 hours. A commercial laboratory would take a minimum of 7 days

- Fingerprint Analysis

Fingerprint analysis is required to detect metals and volatile organics in order to prevent the mixture of incompatible waste and to comply with permit requirements for permitted waste storage and treatment units. Storage containers in satellite and/or 90-day accumulation areas require a fingerprint analysis to determine if a waste is compatible for storage with other wastes.

A private laboratory could not adequately support the timely analysis required to transport these containers to appropriate storage areas. The General Labs in Building 881 can provide preliminary analysis within 24 hours. A commercial laboratory would take a minimum of 7 days.

#### COMPENSATORY MEASURES

Continued operation of the process waste system to support these critical health and safety activities will be done in accordance with the following compensatory measures:

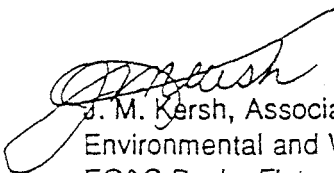
- A limited number (4 sinks, 2 cup sinks and 2 acid scrubbers) will be designated for the use of these activities. These areas are in the General Labs working area.
- The remaining process waste sinks and drains, throughout the building, will not be in operation. The process waste pipelines connected to the sinks and drains are considered to be empty because this piping is part of a gravity feed system.
- The process waste lines in use will be visually inspected and documented for signs of leakage every 24 hours. The remaining process waste sinks and drains will remain empty and will not be inspected.

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- The in-use uninspectable overhead piping, due to dropped ceilings, will be inspected for signs of leakage by removing the ceiling tiles and visually inspecting the piping every 24 hours.
- The floor area beneath, or adjacent to, the in-use ancillary equipment will be inspected for any signs of leakage every 24 hours.
- Building 881 has submitted an Integrated Work Control Package to install a pipe-inside-a-pipe line for a limited number of sinks. During this installation, the remaining sinks and drains will be physically blanked. The installation of this line should be completed by December 14, 1992.

In summary, Building 123 is continuing the above discussed operations while meeting the compensatory measures as outlined in the RCRA Contingency Plan 92-016. Building 881 critical laboratory operations will begin on October 19, 1992, in accordance with the compensatory measures described above.

Please contact J. Zarret at extension 4660, if you have any comments or require additional information regarding our plan for operation of the Building 123 or 881 laboratories.



J. M. Kersh, Associate General Manager  
Environmental and Waste Management  
EG&G Rocky Flats, Inc.

LCB:par

Orig. and 1 cc - R. M. Nelson, Jr.